

Progress **REPORT**

2023 treehealth.wsu.edu

**WSU Ravenholt Urban
Forest Health Lab**





WASHINGTON STATE
UNIVERSITY

Washington State University **PROGRESS REPORT** 2022-2023

The purpose of this document is to highlight the impacts made possible by the Albert Victor Ravenholt Fund.

This report was prepared by Dr. Joseph Hulbert, Program Director of the WSU Ravenholt Urban Forest Health Lab.

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Urban Forest Health Lab

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Welcome Message

Support from the Albert Victor Ravenholt Fund has been invaluable for establishing an urban forest health focused program at WSU. The resulting program has extended WSU's land grant mission of service and problem solving to urban communities in Washington State.

Receiving support to establish and develop the WSU Ravenholt Urban Forest Health Labs has been instrumental for my growth as a early career scientist. As the lab's Director, my understanding of the needs of urban communities has deepened, while I've fostered innovative collaborations, and provided useful data for urban development strategies.

Looking ahead, I am excited to grow the program and team to mentor more students, engage more communities and stakeholders, and continue to establish WSU as a leader in delivering impacts for urban communities.

A handwritten signature in black ink that reads "Joseph Hulbert".

Joseph Hulbert, PhD
Program Director

Our Story

The WSU Ravenholt Urban Forest Health Lab was established in 2022 with the generous support of the Albert Victor Ravenholt Fund. The program operates out of the WSU Puyallup Research and Extension Center in Puyallup, Washington. Programming within the lab is overseen by Dr. Joseph Hulbert, Dr. Marianne Elliott, Dr. Gary Chastagner and Todd Murray.

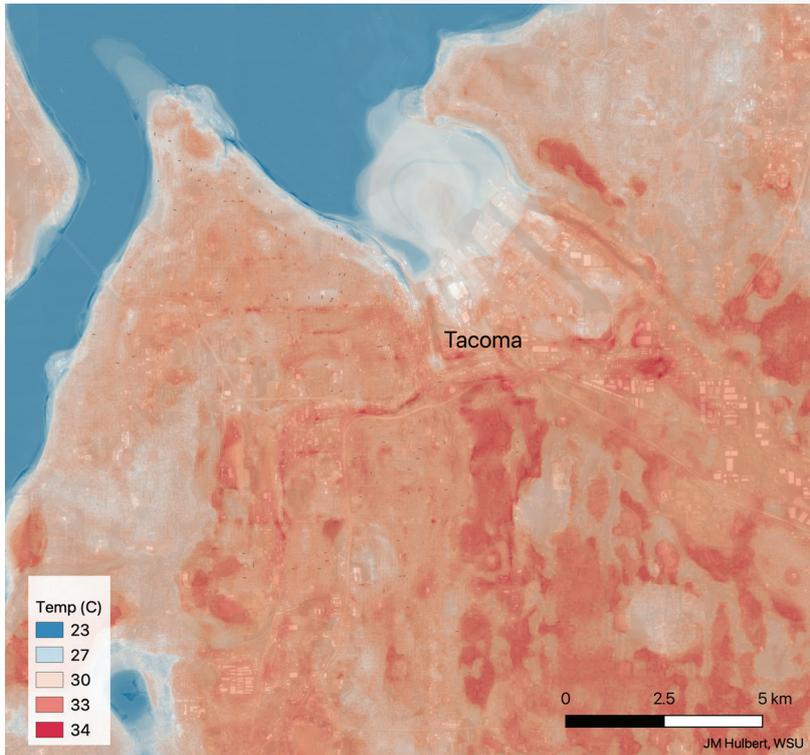
Recognizing that 80% of people in the United States live in cities and rely on healthy urban forests, and the position of WSU Puyallup in an ever increasingly urbanized environment, WSU was grateful to receive support to establish a program focused on urban forest and community health.

The WSU Ravenholt Urban Forest Health Lab was designed to advance knowledge and stewardship for growing equitable, healthy, and vibrant urban forests.

This report was generated one year after establishment. During the first year, the program leveraged partnerships and programming of the Ornamental Plant Pathology Program and the Forest Health Watch to engage communities and solve problems in the urban environment.

More information about the program and impacts are provided in the following pages and summarized at <https://treehealth.wsu.edu/>





One project in the WSU Ravenholt Urban Forest Health Lab engages community scientists to investigate relationships between urban heat islands, environmental health disparities, and tree health.



Objective

Urban trees provide critical services for keeping communities healthy, such as mitigating the impacts of heat waves, but these benefits are not equally distributed and more research is needed to improve the services of urban forests equitably.

In the Pacific Northwest, there is enormous need—and opportunity—to equitably increase the resilience of communities by advancing knowledge and stewardship for growing healthy and vibrant urban forests.

The objective of the WSU Ravenholt Urban Forest Health Lab is to increase the resilience of Washington Communities to life-threatening events like heat waves. We accomplish this objective by guiding equitable urban forest practices, empowering communities, and advancing knowledge about the issues affecting the health of Washington’s urban forests.

Our Team

The accomplishments of the WSU Ravenholt Urban Forest Health Lab are achievable because of the excellence of the people in 'Team Trees'.

Program Leadership



Dr. Joseph Hulbert

Postdoctoral Research Associate, Department of Plant Pathology

Program Advisors



Todd Murray

Director, WSU Puyallup Research and Extension Center



Dr. Marianne Elliott

Research Associate, Department of Plant Pathology



Dr. Gary Chastagner

Professor, Department of Plant Pathology

Technicians and Student Interns



Fig Dewitz

Agriculture Research Technician 2, Part-Time



Noah Willers

Agriculture Research Technician 2, Part-Time



Jah'Niya Myers

2023 Summer Internship Student, Washington State University

WSU Ravenholt Urban Forest Health Lab

Impacts



We positively impact communities through educational, engagement, and research outcomes.

Empowered Communities

The Ravenholt Lab has empowered communities through outreach, mentorship, educational activities, and community science projects. Some of the key metrics are summarized below:

- Fifteen outreach and engagement events were organized. These events resulted in follow up emails asking for internship opportunities and new participation in community science projects.
- 135 people registered and attended four hosted webinars about urban forest health.
- Two early career professionals and one internship student were mentored.

Novel Partnerships

The Ravenholt Urban Forest Health Lab has established new partnerships between WSU and Community Colleges including Tacoma Community College and Highline College. These partnerships provided opportunities to engage and inspire students through guest lectures and campus tours.

Advanced Knowledge

Many research outcomes were delivered to advance knowledge and increase resiliency to the impacts from heat waves. For example, a storymap was created to help guide equitable tree planting in Tacoma, a review was published about the value of community science for invasive species monitoring, and a project to study maple tree health across urban heat islands was created.



Impacts through Educational Activities



“Education is the most powerful weapon which you can use to change the world” - Nelson Mandela

“I feel your [webinar] series was incredibly important because it educated a citizen like me about the threats to our trees and what is involved in trying to save them... it was really a well spent 4 hours for me!” - Jeff Austin, Snohomish County

8 Guest Lectures

- Washington State University
- Green River College
- University of Washington
- UW Tacoma
- Highline College
- University of Puget Sound

Eight guest lectures were provided for students at six college campuses. Each lecture acknowledged support from the Albert Victor Ravenholt Fund.

4 Webinars Hosted



Washington State University

Ravenholt Urban Forest Health
Spring 2023 Webinars
9:00am PDT on Wednesdays in May



- May 3 - Maple dieback and community science
- May 10 - Emerald ash borer preparation
- May 17 - Pine and birch beetle mortality and Seattle tree replacement programming
- May 24 - Pest Readiness programming and implementation

Register at <https://treehealth.wsu.edu>

Made possible with support from WADNR Urban Forestry Community Assistance Grant Number 93-103786 and the generosity of the Albert Victor Ravenholt Fund




<https://treehealth.wsu.edu/recordings>

Presentations



Sixteen presentations were provided to diverse audiences. All presentations acknowledged support from the Albert Victor Ravenholt Fund.

Mentorship



Direct mentorship and training were provided to two early career professionals and one student intern.

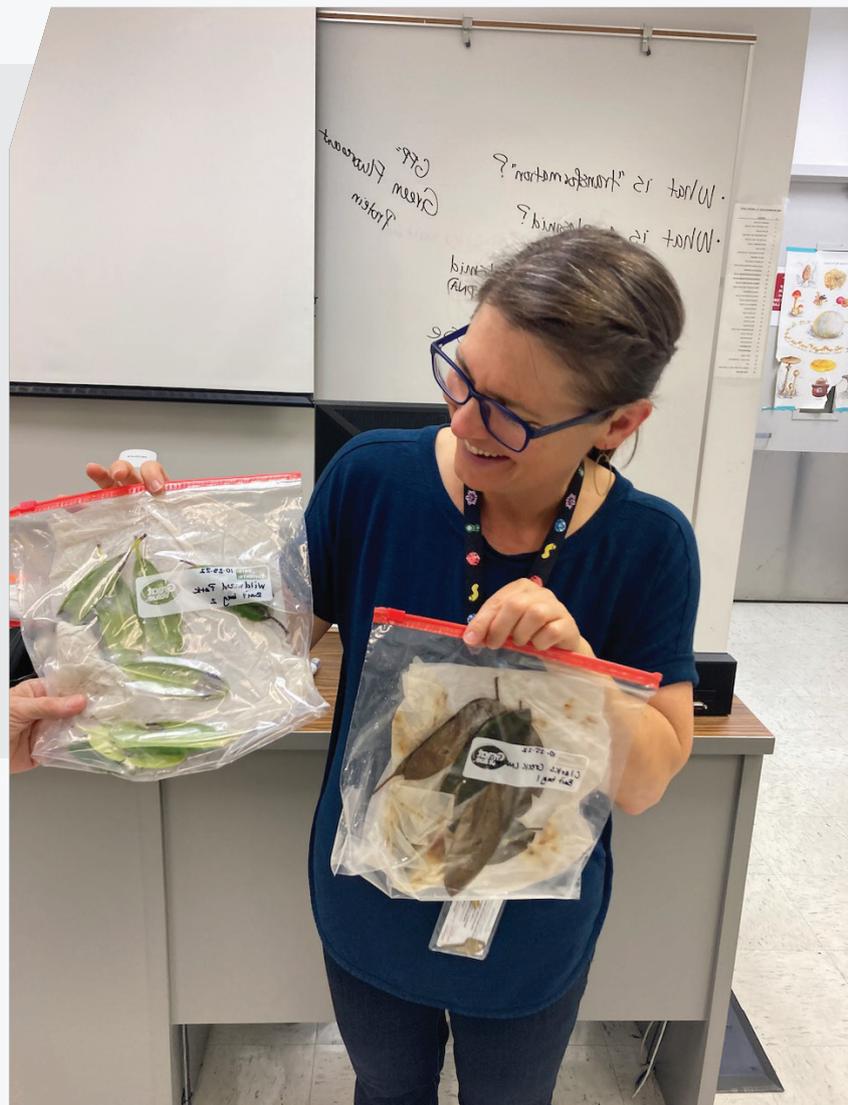
Community and Stakeholder Engagement

The Ravenholt Urban Forest Health Lab led many community engagement events between Fall 2022 and Spring 2023. Educational hikes were organized in collaboration with the Tacoma Tree Foundation, Issaquah Alps Club, and the City of Tacoma Open Spaces Program.

Engagement Events

- **3** Educational Hikes
- **6** Tabled Community Events
- **5** WSU Puyallup Campus Tours
- **1** Youth Engagement Event

Educational materials were shared during tabling events at the State Spring Fair in Puyallup, the Tacoma Flower and Garden Festival, the South Sound Sustainability Expo, a Climate Science on Tap event in Seattle, and more.



Five Puyallup campus tours were organized to share research with stakeholders and college students. One tour was specifically organized for underserved students in the MESA program at Tacoma Community College.



In one youth engagement activity, students at Chief Leschi School (Puyallup Tribe) helped collect soils to monitor nitrogen change from an area where we planted red alder together.

Leveraging Community Science

176 Community Scientists



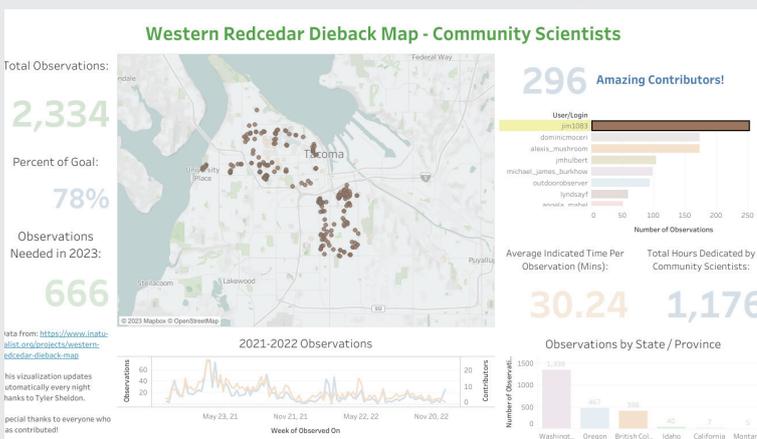
50 Tacoma Community Scientists

The Ravenholt Urban Forest Health Lab has expanded the community scientist network of the Forest Health Watch to include 50 additional Tacoma Community Scientists.

Many of these community scientists have participated in research projects to collect samples, map unhealthy trees, and compare tree health across urban heat islands.



Jim Knettle - Tacoma Community Scientist



Jim began sharing observations of western redcedar trees in Tacoma after attending an educational hike with us in December 2022. Since then, Jim has added more than 250 observations of trees to the Western Redcedar Dieback Map. These observations are invaluable for comparing tree health across urban heat islands in Tacoma.

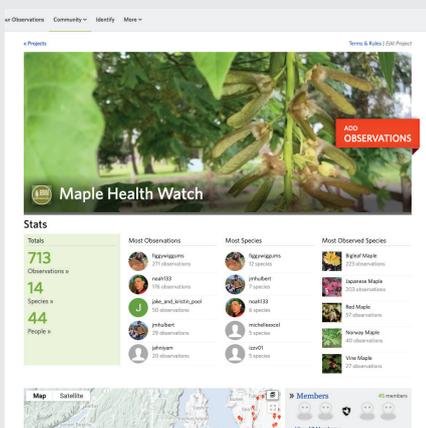


Advancing Knowledge for Community Health Research Outcomes



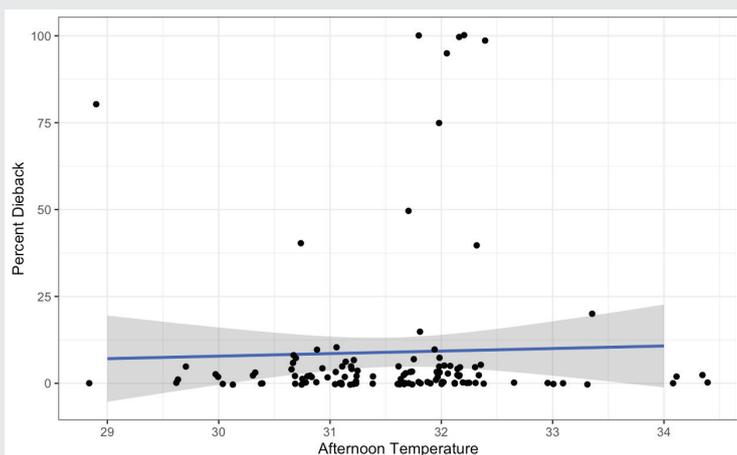
Published Review Article

A review summarizing the value of citizen and community scientists for monitoring invasive species was published in Frontiers in Ecology and the Environment in January 2023.



New iNaturalist Project

More than 700 maple trees have been mapped in a community science project designed to assess tree health across urban heat islands. This project was also used by an educator at Highline College to engage students to assess tree health and urban heat.

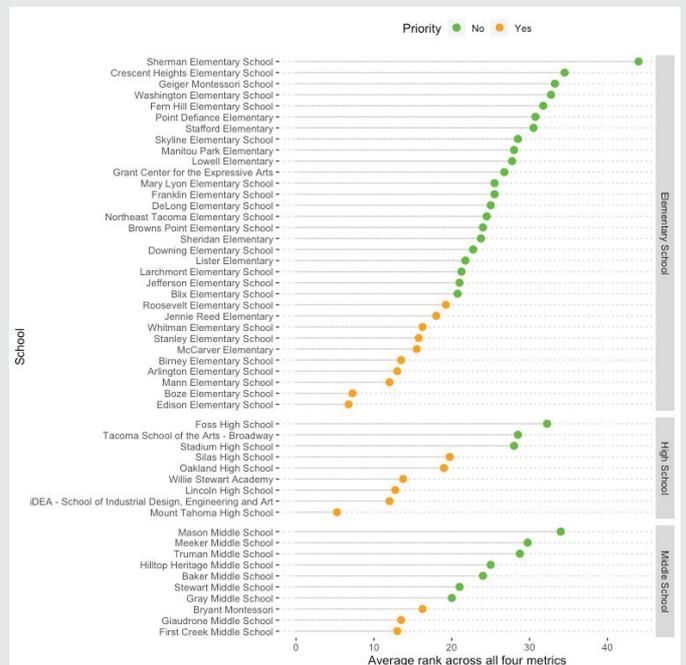


Sooty Bark Disease Sample Diagnostics



Many samples of trees infected with Sooty Bark Disease have been collected or submitted from stakeholders in urban areas. Technicians in the Urban Forest Health Lab dedicated time to culturing fungi from these samples. Some of the cultures are putative novel fungal species. Plans have also been made to share some cultures with international collaborators for population genetic studies.

Guiding Equitable Greening Efforts in Tacoma



<https://storymaps.arcgis.com/stories/0b8e2570da4a47d3a6ffb0907b738cea>

Fig Dewitz led a study to rank Tacoma Public Schools for equitable greening efforts. Ranks were based on four datasets shared by City of Tacoma or available from Pierce County and the Washington Tracking Network. Schools were ranked based on the measured urban heat, environmental health disparities, urban tree canopy coverage, and the number of street trees. A storymap has been created and shared with City of Tacoma and Tacoma Public Schools for review before sharing publicly.



WSU Ravenholt Urban Forest Health Lab

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We are grateful for the remarkable support we receive from the Albert Victor Ravenholt Fund to establish, grow and sustain the WSU Ravenholt Urban Forest Health Lab.